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Potholes

DUI LAW IN THE BUDDING MARIJUANA INDUSTRY

INTRODUCTION

Few areas of public opinion and policy have changed as rapidly in the past decade as those concerning the acceptable use of marijuana. While the use of marijuana can be traced back for millennia,¹ Americans have only recently started accepting the sanctioning of marijuana for medicinal or recreational purposes.² When Gallup began polling on marijuana legalization in 1969, only 12% of Americans favored legalization.³ By the start of the new millennium, that number had steadily risen to about 30%.⁴ The last decade has seen a remarkable spurt in public acceptance of marijuana legalization.⁵ As of this writing, a historically high 60% of the nation now favors the legalization of marijuana.⁶ A majority of states have laws permitting the use of cannabis or its extracts for various medical purposes.⁷ Four states and the District of Columbia have legalized recreational use of marijuana, and many states are primed to follow in their footsteps in the near future.⁸ Four additional states—California, Maine, Massachusetts, and Nevada—approved recreational

¹ Agata Blaszcak-Boxe, *Marijuana's History: How One Plant Spread Through the World*, LIVE SCI. (Oct. 17, 2014), <http://www.livescience.com/48337-marijuana-history-how-cannabis-travelled-world.html> [<https://perma.cc/CNE2-6UMA>].

² See, e.g., Christopher Ingraham, *Gallup: Support for Legal Marijuana at an All-time High and Likely to Grow*, WASH. POST (Oct. 21, 2015), <https://www.washingtonpost.com/news/wonk/wp/2015/10/21/gallup-nearly-60-percent-of-americans-want-legal-marijuana> [<https://perma.cc/ZL5X-AL6R>].

³ Art Swift, *Support for Legal Marijuana Use Up to 60% in U.S.*, GALLUP (Oct. 19, 2016), <http://www.gallup.com/poll/196550/support-legal-marijuana.aspx> [<https://perma.cc/2564-BST3>].

⁴ *Id.*

⁵ See *id.*

⁶ *Id.* (The polling isn't clear as to whether the support is for recreational use or simply medical use.).

⁷ *Medical Marijuana*, NORML, <http://norml.org/legal/medical-marijuana-2> [<https://perma.cc/U7E6-UH86>]. This includes states that permit the medical use of cannabidiol (CBD) extracts. *Id.* CBD is the non-psychoactive compound found in marijuana that has been used to treat various ailments, particularly seizure disorders. *What Is CBD?*, PROJECT CBD, <https://www.projectcbd.org/what-cbd> [<https://perma.cc/S339-C7CY>].

⁸ See Ingraham, *supra* note 2.

marijuana initiatives at the polls on November 8, 2016.⁹ Additional support exists at the federal level where progressive lawmakers have pushed to end federal prohibition of the drug,¹⁰ thus opening the gate for states to create their own marijuana policies free from federal interference.¹¹ Given the trajectory of marijuana legalization,¹² the green rush has just started.¹³

The rapid legalization of marijuana across the country will inevitably create new and unique legal issues for lawmakers in a non-prohibitionist regime. Perhaps the most idiosyncratic and problematic issue associated with the increase in legal marijuana is the manner in which states will regulate its use by drivers on the nation's highways and roads. While many states have legalized the medical or recreational use of marijuana, they have had trouble establishing clear, scientifically legitimate, and penologically appropriate laws regarding drivers who use marijuana legally. Instead, having pushed marijuana as a drug similar to alcohol for political purposes to gain support for legalization,¹⁴ policymakers are now increasingly looking at *alcohol* DWI laws as a basis for *marijuana* DUI laws.¹⁵ While analogizing the effects of marijuana to those of alcohol for the purpose of gaining public support is politically expedient, such a comparison lacks any scientific legitimacy.

⁹ Melia Robinson & Skye Gould, *This Map Shows Every State that Legalized Marijuana on Election Day*, BUSINESS INSIDER (Nov. 9, 2016), <http://www.businessinsider.com/where-is-marijuana-legal-2016-11> [<https://perma.cc/8AVG-FBXP>].

¹⁰ Marijuana remains a Schedule I drug under federal law. Schedule I drugs are defined as drugs that have a high potential for abuse, no accepted medical use, and are unsafe. 21 U.S.C. § 812 (2012). The federal government has stubbornly refused to reschedule marijuana to reflect its medicinal benefits. See Jay M. Tiftickjian, *A Brief History of Marijuana Legislation in Colorado*, in MEDICOLEGAL ASPECTS OF MARIJUANA: COLORADO EDITION 2 (Jay M. Tiftickjian ed., 2015) [hereinafter Tiftickjian, *History of Marijuana Legislation in Colorado*]. This is merely another example of how both federal and state governments have been slow to adapt marijuana laws to reflect scientific realities.

¹¹ See Ingraham, *supra* note 2.

¹² See *id.*

¹³ See Tom Huddleston, Jr., *Legal Marijuana Sales Could Hit \$6.7 Billion In 2016*, FORBES (Feb. 1, 2016), <http://fortune.com/2016/02/01/marijuana-sales-legal/> [<https://perma.cc/TG3R-5AA2>].

¹⁴ Legalization advocates have drawn parallels between the current regulation of alcohol and the potential regulation of marijuana. It seems likely that such a comparison makes legalization efforts more palatable to voters. This is evidenced by the Marijuana Policy Project's various statewide legalization campaigns, entitled: "Regulate Marijuana Like Alcohol." See *Ballot Initiative Campaigns*, MARIJUANA POLICY PROJECT, <https://www.mpp.org/about/campaigns> [<https://perma.cc/98SF-T9T8>].

¹⁵ It should be noted that states vary widely amongst each other with regard to the statutory language they use for various driving offenses involving alcohol and other drugs. States have charges for DUI (driving under the influence), DWAI (driving while ability impaired), and DWI (driving while intoxicated), etc. As it pertains to this note, these distinctions are not particularly relevant. Compare N.Y. VEH. & TRAF. LAW § 1192 (McKinney 2016) (containing both a DWAI and DWI law), with COLO. REV. STAT. § 42-4-1301 (2016) (containing both a DUI law and DWAI law).

Marijuana is distinctive from a drug like alcohol, which is easy to test for and metabolizes in the human body at a similar rate among all individuals.¹⁶ Marijuana is highly unique in that it metabolizes at different rates among different individuals depending upon a variety of factors and can typically only be accurately tested with a blood sample.¹⁷ Most importantly, marijuana compounds can stay in the human body after weeks of abstinence depending on individual factors such as frequency of use.¹⁸ These idiosyncrasies necessarily make legal marijuana patients, and those who are chronic recreational users, especially susceptible to DUI prosecution in states that have created threshold amounts for marijuana in the blood system—similar to the blood-alcohol-content (BAC) used for DWI convictions. The increasing number of states legalizing marijuana usage will only exacerbate this growing problem until jurisdictions make certain policy and statutory changes. Without such changes, legal marijuana users will be stuck navigating through the weeds of irrational DUI laws.

This note examines the science behind marijuana-impaired driving before analyzing various states' marijuana DUI laws. Part I of this note examines the unique scientific properties of marijuana and its impairing effects as compared to alcohol's intoxicating properties. This part also illustrates the chemical characteristics of marijuana that make it difficult to create numerical thresholds (like a .08 BAC for alcohol), which correlate with driving impairment. Part II provides a comparative analysis of selected states—Arizona, Colorado, and New York—with either medical or recreational marijuana regimes, and the ways in which they have managed the issue of marijuana DUIs. Part III uses New York's current DUI laws as the foundation upon which to recommend various statutory and policy changes, with the goal of creating a marijuana DUI regime based, more compellingly, on science, impairment, and dangerousness. This note argues that reliance on statutory numerical thresholds is illogical given marijuana's unique scientific properties; instead, states should adopt a more subjective approach to enforcing such laws by relying upon drug recognition experts (DREs)¹⁹ in conjunction with body-cameras to achieve DUI prosecutions.

¹⁶ See Andrea Roth, *The Uneasy Case for Marijuana as Chemical Impairment Under a Science-Based Jurisprudence of Dangerousness*, 103 CALIF. L. REV. 841, 852 (2015).

¹⁷ See *id.* at 886.

¹⁸ See Gary M. Reisfield et al., Commentary, *The Mirage of Impairing Drug Concentration Thresholds: A Rationale for Zero Tolerance Per Se Driving under the Influence of Drugs Laws*, 36 J. ANALYTICAL TOXICOLOGY 353, 354 (2012).

¹⁹ Drug recognition experts are specialized officers who have been trained to “detect[] and identify[] persons under the influence of drugs and in identifying” the

I. THE SCIENCE OF DRUGGED DRIVING

A necessary prerequisite to any analysis of marijuana DUI laws must focus on the scientific underpinnings of both DUI jurisprudence and the chemistry behind marijuana and alcohol, respectively. Any drug—including marijuana and alcohol—can be potentially impairing if it affects a driver's concentration, awareness, judgment, or coordination.²⁰ This part of the note will thus concentrate its analysis on how impairment is measured from a legal standpoint. The beginning of such an inquiry largely centers on the chemistry of marijuana, examining its significance in terms of policing and enforcing impaired-driving laws in particular.²¹ The analysis then contrasts marijuana's impact on driver impairment to the effects felt by the alcohol-impaired driver.

A. *The DUI Alcohol Regime as a Backdrop for Marijuana Law*

In their effort to legalize recreational marijuana via state and national legislation, lawmakers have often utilized rhetoric and language that compares marijuana and alcohol for political purposes.²² Even along the West Coast—where the marijuana legalization movement first originated—users are still aware of the stigma that is attached to marijuana use.²³

type of drug that is the cause of an individual's impairment. *Drug Recognition Experts (DRE)*, INT'L DRUG EVALUATION & CLASSIFICATION PROGRAM, <http://www.decp.org/drug-recognition-experts-dre/what-they-do> [https://perma.cc/59ZR-232S]. DREs are specially trained to evaluate and analyze a person's appearance, behavior, and vital signs in order to make an informed decision regarding a person's potential drug use. *Id.*

²⁰ Importantly, driver impairment from marijuana, alcohol, or any other drug should be assessed the same to the extent that it impacts one's concentration, coordination, or judgment while behind the wheel. See AAA FOUND. FOR TRAFFIC SAFETY: IMPAIRED DRIVING, <https://www.aaafoundation.org/impaired-driving> [https://perma.cc/2RE8-YUKX]. Obviously, deficiencies in these areas can be observed by police in countless ways, such as: speed and braking problems, improper lane positions, swerving, etc. See NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., DOT HS 808 677, *THE VISUAL DETECTION OF DWI MOTORISTS 4* (2010).

²¹ Driving impairment refers generally to the operating of a motor vehicle while under the influence of an intoxicating substance, such as alcohol, marijuana, or other drugs. See *Impaired Driving*, GOVERNORS HIGHWAY SAFETY ASS'N, <http://ghsa.org/html/issues/impaireddriving/index.html> [https://perma.cc/6DHP-R7WF]. While all states have laws regulating impaired driving, "[t]he alcohol-impaired driving laws are better understood and easier to enforce than those for drug-impaired driving." *Id.*

²² See, e.g., Matt Ferner, *Two House Bills Would End Federal Prohibition of Marijuana*, HUFF. POST (Feb. 20, 2015), http://www.huffingtonpost.com/2015/02/20/marijuana-legalization-congress_n_6722686.html [https://perma.cc/MBJ9-KGF4] (For instance, Colorado legislators introduced the "Regulate Marijuana Like Alcohol Act.").

²³ Travis D. Satterlund et al., *Stigma Among California's Medical Marijuana Patients*, 47 J. PSYCHOACTIVE DRUGS 10, 14 (2015).

While policymakers should be lauded for their attempt to destigmatize marijuana use by comparing it to a more ubiquitous drug like alcohol, these efforts ultimately misrepresent the science, specifically as it relates to driving and impairment. While ballot initiatives urging voters to “regulate and tax marijuana like alcohol” have an obvious political appeal, they also have the unfortunate effect of framing *marijuana* policy within the confines of an *alcohol* policy regime.²⁴ Unlike marijuana, the impairing effects of alcohol on driving have been subject to rigorous scientific study, testing, and analysis over the course of several decades.²⁵ Thus, lawmakers should be more than wary of trying to fit marijuana DUI laws neatly into well-established alcohol DUI policy regimes.

The extensive history of drunk driving in the United States has been subject to significant scientific analysis and research, which ultimately led to the establishment of a widely regarded standard for impairment for intoxicated drivers.²⁶ New York criminalized the act of driving while intoxicated in 1910, which case law further construed as the diminished “ability to operate an automobile” while affected by alcohol.²⁷ Given alcohol’s distinctive water solubility, it can dissipate entirely from the body via natural metabolism.²⁸ Because of alcohol’s metabolic characteristics, its concentration in bodily fluids at any point is proportional to its absorption and elimination rates from the body—rates that are similar (though not entirely identical) among all people.²⁹ Thus, as a result of alcohol’s uniquely complete solubility in water, the concentration of alcohol from one’s breath is relatively constant in relation to its blood concentration ratio in arterial blood.³⁰ This discovery allowed scientists to conclude that BAC correlates positively, and linearly, with the intensity of alcohol’s impairing “effect[s] on the user’s central nervous system.”³¹ In 1931, scientist Dr. Rolla Harger invented the “Drunk-O-Meter” to test users’

²⁴ The Colorado ballot initiative legalizing the recreational use of marijuana for adults was entitled “The Regulate Marijuana Like Alcohol Act.” See Ferner, *supra* note 22.

²⁵ See, e.g., Roth, *supra* note 16, at 865.

²⁶ See *id.* at 872–73.

²⁷ Josephine Y. King & Mark Tipperman, *The Offense of Driving While Intoxicated: The Development of Statutory and Case Law in New York*, 3 HOFSTRA L. REV. 541, 544–45 (1975) (providing background information on the rise of DUI laws).

²⁸ Roth, *supra* note 16, at 852.

²⁹ *Id.*

³⁰ *Id.* (“In turn, one’s BAC is generally proportional, in a linear fashion, to the intensity of the effect on the user’s central nervous system.”).

³¹ *Id.*

breath for BAC³²—the original predecessor to the common breathalyzers used today.

In 1941, New York amended its DWI statute to permit the admissibility of BAC test results in DWI cases.³³ Similar to the ways many states would grapple with early BAC-based jurisprudence, New York developed an early statutory scheme that relied heavily on BAC levels to adjudicate cases. Tests resulting in a BAC of .05 or less provided *prima facie* evidence of sobriety, while anything above .05 but below .15 was “relevant evidence of intoxication,” and a BAC above .15 provided “*prima facie* evidence of intoxication.”³⁴ This statutory scheme, however, ostensibly tolerated the impaired driver while criminalizing only the intoxicated driver at the higher BAC threshold.

The post-War years led to a massive rise in DWI fatalities as automobile culture accelerated through the 1950s and 1960s leading to an eventual high of approximately 50,000 automobile deaths each year.³⁵ States responded accordingly as more scientific research was able to correlate BAC levels with levels of impairment and dangerousness, leading New York to establish a .10 BAC as *prima facie* evidence of impairment under the state’s new DWI law.³⁶ Increasing scientific work, most notably by famed New York bureaucrat and physician William Haddon (who later became the first director of the National Highway Traffic Safety Administration), started to focus on the relation of BAC to dangerousness through crash-test studies.³⁷ By the early 1970s, New York, along with almost every other state, had established *per se* laws prohibiting driving with a .10 BAC or above.³⁸ The law and order era of the 1980s and 1990s saw the rise in prominence of groups like Mothers Against Drunk Driving (MADD), which were able to seize upon a changing political landscape, as well as focusing events like the death of Princess Diana, in pushing for an even lower .08 BAC *per se* law.³⁹ In 2000, President Bill Clinton started withholding highway funding for states that did not meet the lower .08 BAC *per se* standard.⁴⁰ By 2004, every state and the District of Columbia had established *per se* .08 BAC driving laws.⁴¹

³² See *id.* at 853.

³³ King & Tipperman, *supra* note 27, at 546.

³⁴ *Id.* at 546–47.

³⁵ Roth, *supra* note 16, at 863.

³⁶ King & Tipperman, *supra* note 27, at 563.

³⁷ Roth, *supra* note 16, at 864–65, 867.

³⁸ King & Tipperman, *supra* note 27, at 578–79.

³⁹ Roth, *supra* note 16, at 872–73.

⁴⁰ *Id.*

⁴¹ *Id.*

B. *The Impact of Marijuana on Driving Impairment*

Marijuana's unique chemical properties—particularly the way its various compounds interact within the human body—make it markedly different from other potentially intoxicating substances, especially with regard to how it is measured and its impact on driving ability. The main psychoactive component in marijuana is delta-9-tetrahydrocannabinol (THC), the compound that causes the impairment most associated with marijuana use.⁴² Importantly, it is THC that gives marijuana so many of its unique properties as a drug; specifically, the mere presence of THC in the body can provide little information as to when the drug was used, how much was used, and its current impairing effect on the user.⁴³ Unlike alcohol, which is eliminated from the body quickly and in a steady, linear fashion, THC is much more fat-soluble and thus concentrates largely within the fatty adipose tissue of the human body.⁴⁴ As a result of the highly fat-soluble nature of THC, its functional impairing effects may maximize up to an hour after inhalation,⁴⁵ while blood levels of THC spike within minutes of inhalation, before quickly decreasing in concentration.⁴⁶ Consequently, while blood concentrations of THC will spike quickly after usage, the *effects* of THC can lag for some time. Ultimately, this is one of the main reasons why scientists have struggled to correlate blood levels of THC with actual impairment, particularly when compared to the ease of doing so with alcohol.⁴⁷

Perhaps the most inimitable and problematic characteristic of THC is that its impairing effects are highly variable among individuals depending on numerous additional factors, particularly the chronicity of use.⁴⁸ Studies have found

⁴² See Franjo Grotenhermen et al., *Developing Limits for Driving Under Cannabis*, 102 ADDICTION 1910, 1911 (2007).

⁴³ See *id.*

⁴⁴ R. Andrew Sewell et al., *The Effect of Cannabis Compared with Alcohol on Driving*, 18 AM. J. ON ADDICTIONS 185, 188 (2009).

⁴⁵ Inhalation remains the most common method of using marijuana. *How Marijuana Is Consumed*, DRUG POLICY ALL., <http://www.drugpolicy.org/facts/drug-facts/marijuana/how-marijuana-consumed> [<https://perma.cc/85MT-GQQB>]. For the sake of this note, assume that “marijuana use” or “usage” refers to the inhalation of marijuana smoke unless otherwise stated. Other methods of marijuana ingestion exist (such as inhaling vaporized THC or consuming edible foods containing THC) and are becoming increasingly prevalent. See *Leafly Chart of the Month: What's the Most Popular Form of Cannabis in Your State*, LEAFLY, <https://www.leafly.com/news/industry/leafly-chart-of-the-month-whats-the-most-popular-form-of-cannabis/> [<https://perma.cc/R6Q5-6JLX>].

⁴⁶ Sewell et al., *supra* note 44, at 188.

⁴⁷ *Id.*

⁴⁸ Mark J. Neavyn et al., *Medical Marijuana and Driving: A Review*, J. MED. TOXICOLOGY 269, 271 (2014).

high concentrations of THC in the blood of chronic marijuana users many days after last usage, when the impairing effects have long worn off.⁴⁹ The fat-soluble nature of THC enables it to be stored in human fat tissue for a variable period of time while gradually being released back into the bloodstream anywhere from a day for an occasional user, to several weeks for a chronic user.⁵⁰ Consequently, the occasional smoker who inhales from a marijuana cigarette may test negative for THC in blood samples a few days later (or less), while a chronic user who abstains for several weeks may still test positive for THC.⁵¹ It is precisely here where the science behind marijuana complicates the law with regards to testing for DUIs.

1. Idiosyncrasies of Blood and Urine Testing

Once THC is circulating in the bloodstream, it begins to break down into its ultimate inactive metabolite form, 11-nor-9-carboxy-THC (Carboxy-THC), which is “the most ubiquitous THC metabolite found in urine” samples.⁵² Carboxy-THC can stay present in the bloodstream for months depending upon the frequency of marijuana use.⁵³ However, “the qualitative measurement of [Carboxy-THC] metabolite in urine does not correlate with either time of ingestion or active intoxication. This dilemma has led investigators to pursue alternative testing to determine marijuana intoxication and predict time of ingestion.”⁵⁴ From a legal standpoint, this makes testing for the presence of THC difficult for law enforcement conducting routine traffic stops. Unable to utilize roadside urine testing—because such tests cannot reliably determine impairment levels for marijuana (beyond the fact that such tests are not practical)—law enforcement has increasingly come to rely on whole blood or blood serum samples in order to more accurately test for THC.⁵⁵

Unfortunately, even such whole blood and blood serum samples have proven to be unreliable for determining THC

⁴⁹ Erin L. Karschner et al., *Do Δ^9 -Tetrahydrocannabinol Concentrations Indicate Recent Use in Chronic Cannabis Users?*, 104 ADDICTION 2041, 2046 (2009).

⁵⁰ See *How Long Does Cannabis Stay in the Body After Smoking?*, NHS CHOICES, <http://www.nhs.uk/chq/Pages/2287.aspx?CategoryID=53> [<https://perma.cc/8H83-8J7R>] (last updated July 1, 2016).

⁵¹ See *id.*

⁵² Neavyn et al., *supra* note 48, at 271.

⁵³ *Id.*

⁵⁴ *Id.* at 273.

⁵⁵ *Id.*; see, e.g., MONT. CODE ANN. § 61-8-411 (2015) (Montana DUI statute focusing on blood samples to test for THC).

levels, let alone impairment.⁵⁶ Since marijuana has a half-life⁵⁷ of over two months, “[i]n chronic cannabis users[] it is particularly difficult to determine whether a positive result for cannabis [from a blood test] represents a new episode of drug use or continued excretion of residual drug.”⁵⁸ Not only are blood samples therefore subject to a vast amount of variability depending on the individual’s chronicity of marijuana use, but blood samples are practically difficult to obtain and lack accuracy in other ways. Crucially, “[i]t is more difficult to persuade randomly stopped drivers to submit to a blood test for THC than to a breath test for BAC, and other tests for THC—such as saliva and urine—are currently less accurate than blood and may underestimate THC blood level.”⁵⁹ Additionally, in cases involving car accidents in which samples may not be collected for hours after the incident, *urine* samples are likely to be *overinclusive*—since THC is slowly released from fat cells into urine even weeks after use—while *blood* samples can possibly be *underinclusive* for THC⁶⁰—since the blood sample itself continuously metabolizes THC to its inactive metabolite, Carboxy-THC.⁶¹

While marijuana use presents new issues with regard to a proper testing methodology for THC, it also presents issues with regard to whether THC metabolites should also be tested for, and, if so, how such tests might factor into the equation for determining legal levels of marijuana impairment. Many state DUI statutes include a prohibition on marijuana metabolites, including the inactive Carboxy-THC.⁶² Although there may

⁵⁶ See Mateus M. Bergamaschi et al., *Impact of Prolonged Cannabinoid Excretion in Chronic Daily Cannabis Smokers’ Blood on Per Se Drugged Driving Laws*, 59 CLINICAL CHEMISTRY 519, 525 (2013).

⁵⁷ “Half-life” is defined as “the time required for half the amount of a substance (as a drug, radioactive tracer, or pesticide) in or introduced into a living system or ecosystem to be eliminated or disintegrated by natural processes.” *Half-life*, MERRIAM-WEBSTER.COM, <http://www.merriam-webster.com/dictionary/half-life> [<https://perma.cc/5S93-U6PN>].

⁵⁸ Priyamvada Sharma et al., *Chemistry, Metabolism, and Toxicology of Cannabis: Clinical Implications*, 7 IRANIAN J. PSYCHIATRY 149, 152 (2012).

⁵⁹ Roth, *supra* note 16, at 901–02.

⁶⁰ See Jared D. Adams, *New Issues in Driving Under the Influence of Cannabis Cases*, in UTILIZING FORENSIC SCIENCE IN CRIMINAL CASES 59 (2013) (“[I]n cases involving a serious accident where the blood sample is not collected until several hours after driving, it is possible that the result could come back negative for [THC], but positive for carboxy-THC. In this scenario, it is conceivable that the prosecution could argue that the driver was under the influence. However, an occasional user can test positive for some level of [Carboxy-THC] up to seven days after consumption. Thus, the results of this test do not conclusively determine whether a driver was or was not under the influence.”).

⁶¹ See *id.* at 58–59.

⁶² See, e.g., UTAH CODE ANN. § 41-6a-517(2) (West 2016). *But cf.*, OHIO REV. CODE ANN. § 4511.19(A)(1)(j)(vii)–(viii)(I) (West 2016) (Some states, such as Ohio, have established numbered per se laws for a specified concentration of marijuana metabolites allowed in a driver’s blood.).

remain some moral justification for prohibiting or limiting the concentration of marijuana metabolites in the blood of drivers—at least in states with blanket marijuana prohibitions—such policies are simply unsupported by the scientific literature and are often based on political expediency and moral disapproval of the drug.⁶³

This legal battle is currently playing out in a medical marijuana state, Arizona, where the state court of appeals recently held that any amount of THC or “impairing metabolite” could uphold a DUI conviction, regardless of actual driver impairment or status as a medical marijuana patient.⁶⁴ Accordingly, a legal medical marijuana patient in Arizona would likely always be driving with at least some level of THC metabolites in his or her blood system even during a prolonged period of abstinence.⁶⁵ The prohibition of metabolites persists in Arizona despite conclusive research detailing the non-psychoactive features of the main THC metabolite, Carboxy-THC.⁶⁶ Thus, the presence of Carboxy-THC in the blood of a driver serves no scientific purpose with regards to measuring impairment levels. In states with a blanket prohibition on marijuana, such a proscription can, at the very least, be supported by general moral disapproval of a drug that is statutorily illegal to possess or consume. Hence, per se laws prohibiting even non-psychoactive marijuana metabolites in drivers could be justified under a jurisprudence of prohibition while being logically connected to a legitimate penal goal.⁶⁷ Once a state has legalized medicinal or recreational use of the drug, however, per se prohibitions on the non-psychoactive metabolite of THC—and perhaps THC itself—can no longer be justified under a jurisprudence of prohibition and moral condemnation.

When marijuana is legalized in some form, “a prohibitionist approach is an awkward fit if the justification for the law is the dangerousness of the drug’s impairing effects, rather than simply the immorality of using the drug.”⁶⁸ Marijuana

⁶³ See Mark Hansen, *Drugged State: Ohio Pushes for Tough Laws for Drivers, Critics Question Impairment Issue*, 91 ABA J. 12, 14 (2005).

⁶⁴ *Dobson v. McClennen*, 337 P.3d 568, 574 (Ariz. Ct. App. 2014) (citing *State ex rel. Montgomery v. Harris*, 322 P.3d 160, 164 (Ariz. 2014)), *vacated*, 361 P.3d 374 (2015). This legal battle is still ongoing and was recently vacated by the Arizona Supreme Court. *Dobson v. McClennen*, 361 P.3d 374, 375 (Ariz. 2015). This litigation will be discussed in further detail later in this note. See *infra* Part II.A.

⁶⁵ See Bergamaschi et al., *supra* note 56, at 519 (“Cannabinoids can be detected in blood of chronic daily cannabis smokers during a month of sustained abstinence.”).

⁶⁶ István Ujváry & Franjo Grotenhermen, *11-Nor-9-Carboxy-Δ⁹-Tetrahydrocannabinol—A Ubiquitous Yet Underresearched Cannabinoid: A Review of the Literature*, 9 CANNABINOIDS 1, 5 (2014).

⁶⁷ Roth, *supra* note 16, at 889.

⁶⁸ *Id.* at 890.

DUI laws should be based upon *actual driver impairment* and not merely the presence of particular chemical compounds that provide little justification in hard science to indicate impairment.

2. Unique Impairing Effects of THC

It is not just the non-psychoactive metabolites of THC that have made DUI marijuana laws so problematic, but also the inherently unique impairing effects of the psychoactive THC itself. It is widely accepted that there is at least “a general correlation between blood THC levels and driving impairment.”⁶⁹ The research also shows, however, that frequent marijuana users develop a tolerance that minimizes impairment at a given THC dosage, as compared to infrequent users given the same THC dosage.⁷⁰ Similar studies have also failed to find a relationship between impairment and blood concentrations, since “peak impairment often does not correlate with peak blood drug concentration.”⁷¹ Furthermore, blood concentrations of THC decline rapidly in the human body, so concentrations may be much lower when the sample is collected than when any incident, or alleged impairment, actually occurred.⁷²

What is perhaps even more confounding for any science-based approach to DUI standards is that marijuana impairment is often mitigated by drivers’ self-awareness and overestimation of their own level of impairment.⁷³ Cannabis users tend not only to overestimate the level of their impairment—particularly when compared to alcohol users—but consciously try to mitigate such impairment by taking actions like driving slower and increasing their attention to the road.⁷⁴ “[D]rivers under the influence of cannabis may compensate consciously for some of the impairment of their automatic performance, for example by reducing speed or keeping more distance.”⁷⁵ The use of impairment-mitigation tactics, as described, provide further evidence that increased levels of THC do not necessarily correlate

⁶⁹ Reisfield et al., *supra* note 18, at 354.

⁷⁰ *Id.* This type of tolerance differs in significant ways from alcohol tolerance which will be discussed later in this note. *See infra* Part I.C.

⁷¹ Reisfield et al., *supra* note 18, at 354.

⁷² *Id.*

⁷³ Eduardo Romano et al., *Drugs and Alcohol: Their Relative Crash Risk*, J. STUD. ON ALCOHOL & DRUGS 56, 62 (2014); *see* Grotenhermen et al., *supra* note 42, at 1913.

⁷⁴ Grotenhermen et al., *supra* note 42, at 1913; Romano et al., *supra* note 73, at 62. In on-road studies “[t]he impairment caused by cannabis appeared to be partially mitigated because subjects were aware of their impairment and, where possible, tended to compensate by not overtaking, by slowing down and by focusing attention in anticipation of a required response.” Grotenhermen et al., *supra* note 42, at 1913.

⁷⁵ Grotenhermen et al., *supra* note 42, at 1915.

positively with actual driver impairment—particularly when compared to alcohol users who tend to *underestimate* their level of impairment.⁷⁶ Such evidence lends even more credence to a marijuana DUI regime based upon actual driving impairment, rather than one based upon blood levels of THC or its metabolites.

Perhaps the most interesting finding has been the direct positive link between legalized marijuana and decreased traffic fatalities—particularly traffic fatalities involving alcohol. Researchers have found that states with medical marijuana laws have seen on average an 8-11% drop in total traffic fatalities and a 13.2% decrease in all alcohol-related traffic fatalities in the first year of the laws' implementation.⁷⁷ One hypothesis for this decrease is that in states that have legalized marijuana, it is increasingly used as a substitute for alcohol.⁷⁸ This is one theory why Colorado traffic fatalities hit historic lows in each subsequent year since the state legalized marijuana in 2012.⁷⁹ It has also been theorized that since most marijuana use takes place at home—as opposed to the bars and restaurants alcohol drinkers congregate in—marijuana users are simply less likely to be in a situation where they may drive while impaired.⁸⁰ Even if some societal factors are the reason why marijuana use has led to decreased traffic fatalities, this at least bodes well from a harm reduction standpoint.

C. *A Comparison of Drunk Driving and Drugged Driving*

All of the chemical properties that created the science-based jurisprudence of a BAC-based DUI law for alcohol are nonexistent in marijuana. One major reason it is so difficult to measure marijuana impairment compared with alcohol impairment is that marijuana contains 421 chemicals, 61 of

⁷⁶ “Researchers also concluded Cannabis-influenced drivers ‘may attempt to drive more cautiously to compensate for impairing effects, whereas alcohol-influenced drivers often underestimate their impairment and take more risk.’” René Marsh, *Fed Study: Booze Impact Greater than Pot on Driving*, CNN (June 25, 2015), <http://www.cnn.com/2015/06/24/politics/marijuana-study-drivers-impact/> [<https://perma.cc/X94U-FJUL>]; see Romano et al., *supra* note 73, at 62.

⁷⁷ D. Mark Anderson et al., *Medical Marijuana Laws, Traffic Fatalities, and Alcohol Consumption*, 56 J.L. & ECON. 333, 347–49 (2013).

⁷⁸ *Id.* at 359.

⁷⁹ See Radley Balko, *Since Marijuana Legalization, Highway Fatalities in Colorado Are at Near-Historic Lows*, WASH. POST (Aug. 5, 2014), <https://www.washingtonpost.com/news/the-watch/wp/2014/08/05/since-marijuana-legalization-highway-fatalities-in-colorado-are-at-near-historic-lows> [<https://perma.cc/65AN-2JYK>]; see also Jacob Sullum, *More Pot, Safer Roads: Marijuana Legalization Could Bring Unexpected Benefits*, FORBES (Apr. 3, 2014), <http://www.forbes.com/sites/jacobsullum/2014/04/03/more-pot-safer-roads-marijuana-legalization-could-bring-unexpected-benefits/#10f82e663781>.

⁸⁰ Anderson et al., *supra* note 77, at 335.

which are cannabinoids,⁸¹ while alcoholic beverages only have one psychoactive chemical—ethyl alcohol (also referred to as ethanol or simply alcohol). As discussed above, alcohol follows a linear metabolic route with little individual variability, allowing it to be detected with high precision—unlike marijuana.⁸² The highly variable nature of marijuana makes it difficult to test when a person last used marijuana and the degree to which that person may or may not be currently impaired. Put simply, the fact that marijuana stays in the human body for days after usage, and that dosages of THC create relatively variable levels of impairment depending on individual tolerance, make it nearly impossible to accurately determine if someone is impaired by marijuana at a given time via blood testing.⁸³

Despite certain scientific advancements in cannabis detection, the underlying issue of impairment still remains a variable factor. In April 2015, two University of Akron graduate students developed a device that measures THC levels via a noninvasive, roadside saliva test.⁸⁴ The aptly dubbed “Cannibuster,” along with other similar devices, are admirable efforts in improving THC testing at the precise time of any alleged impairment or incident.⁸⁵ State legislatures should be wary, however, of quickly adopting such devices to enforce marijuana DUI laws considering that THC levels still do not correlate directly with impairment at equal levels among all individuals. Therefore, these devices still do not provide an accurate measure of driver impairment and should not be relied upon as evidence.⁸⁶ Since even small dosages of THC can easily stay present in the body with no impairing effects for over a month,⁸⁷ devices like the “Cannibuster” will do little to tell us about *actual* driver impairment. Such tests could potentially be underinclusive as well by providing a negative or low-test result for THC in the blood when brain concentrations of the chemical are still sufficient to cause impairment.⁸⁸ Strict reliance

⁸¹ Sharma et al., *supra* note 58, at 149.

⁸² Sewell, *supra* note 44, at 188.

⁸³ *See id.*

⁸⁴ *See* Molly Brown, *Meet the Cannibuster, the Latest Breathalyzer for Marijuana*, GEEKWIRE (Apr. 30, 2015), <http://www.geekwire.com/2015/meet-the-cannibuster-the-latest-breathalyzer-for-marijuana> [https://perma.cc/F97F-7ZYJ].

⁸⁵ *See id.*

⁸⁶ *See* Bergamaschi et al., *supra* note 56, at 524–25 (Since more habitual users can test positive for THC “days to weeks after initiation of abstinence,” such devices are not particularly probative of impairment.).

⁸⁷ *See id.* at 519.

⁸⁸ *See id.* at 520–21 (“Thus, blood concentrations may be low or not detected while brain concentrations might be sufficient to cause impairment. These pharmacokinetic

on such technology would inevitably enable some drivers to skirt marijuana DUI laws despite their actual impairment. Ultimately, machines such as the “Cannibuster” may provide law enforcement with data regarding previous marijuana use, but still fail to accurately gauge actual driver impairment in the same way that a breathalyzer measures alcohol impairment.

While the focus for decades within alcohol DWI law has been on the strong correlation between BAC and relative crash risk,⁸⁹ such a simple correlation does not exist for marijuana. It is not merely scientists who realize that alcohol acts, and can be tested, in a way that is unlike most other drugs. A 1985 report on drugged driving by the New York State legislature illustrates policymakers’ awareness of the issue:

The ability to define drug impairment is constrained primarily by the pharmacokinetics of drugs. Unlike alcohol, a single substance with a simple chemical structure, other drugs contain numerous substances and are often chemically complex.

... These drugs may remain in the body for long periods of time In other cases, drug presence may be detected after the drug’s impairment action effectively has ceased. In addition, individuals respond differently to the same dose or the same drug concentration and chronic users can tolerate higher doses than individuals receiving an initial single dose of the drug. Unlike alcohol, . . . drugs are metabolized much more quickly and a higher level of a drug does not always correlate positively with a higher degree of impairment.⁹⁰

Since the report was published in 1985, few things regarding the science behind marijuana impairment testing have changed. Indeed, as previously detailed, a policy regime that is accustomed to relying on BAC for DWI convictions is poorly equipped to handle incidents of marijuana impairment.

What has changed, though, is the rapid transformation of the state laws governing the use of marijuana—from a law and order era of prohibition, to an era of increasingly progressive acceptance of marijuana for both medical and recreational purposes. Marijuana’s presently unique status as a drug on the verge of being accepted as having both sanctioned medicinal and recreational purposes puts lawmakers on the frontier of a new legal landscape. If the drug is accepted for either medical or

characteristics make it difficult to identify a minimum blood THC concentration consistently associated with impairment.”).

⁸⁹ See H. LAURENCE ROSS, *CONFRONTING DRUNK DRIVING* 20–21 (1992).

⁹⁰ N.Y. STATE LEGISLATURE, *COMM’N ON CRITICAL TRANSP. CHOICES, THE DRUG IMPAIRED DRIVER: HOW MUCH TOUGHER SHOULD NEW YORK STATE’S ANTI-DRUNK DRIVING LAWS BE?* 13–14 (1985) (footnotes omitted) [hereinafter *INTERIM REPORT: THE DRUG IMPAIRED DRIVER*].

recreational purposes, or both, lawmakers must create DUI laws that allow for its realistic use and consumption, since moral condemnation can no longer be used as a penal justification for marijuana DUI laws. These potential developments lead to the inevitable question of whether medical marijuana users should be subject to the same DUI laws as recreational users. Additionally, what types of protections should medical and recreational marijuana users be afforded, if any, so that marijuana DUI laws do not convict innocent people but can still convict those guilty of actual driving impairment?

These questions may be answered by exploring three states with different levels of marijuana legalization and different statutory regimes for marijuana DUI laws. Arizona legalized the medicinal use of marijuana in 2010.⁹¹ Since passage of the legislation, the marijuana DUI laws have been hotly contested in courts as prosecutors were able to convict medical marijuana users for DUIs via a per se prohibition on THC and its metabolites.⁹² Colorado passed medical and recreational marijuana laws in 1998 and 2012, respectively,⁹³ while creating a “permissible inference” marijuana DUI standard based upon THC blood levels.⁹⁴ New York recently implemented its 2014 bill aiming to legalize medical marijuana,⁹⁵ yet kept its “ability impaired” standard without revision, despite marijuana’s changing legality.⁹⁶ These states can provide an overview of various marijuana DUI regimes, the benefits of such laws, and the various pitfalls and problem areas associated with such murky legal territory.

⁹¹ *Arizona Voters Approve Medical Marijuana Measure*, CNN (Nov. 14, 2010), <http://www.cnn.com/2010/POLITICS/11/14/arizona.medical.marijuana> [https://perma.cc/K4WH-NX9K].

⁹² See Paul Davenport, *Court: No Medical Marijuana Immunity Under Arizona DUI Law*, THE CANNABIST (Nov. 20, 2015), <http://www.thecannabist.co/2015/11/20/court-no-medical-marijuana-immunity-under-arizona-dui-law/44206/>.

⁹³ Tiftickjian, *History of Marijuana Legislation in Colorado*, *supra* note 10, at 1, 2–3.

⁹⁴ Jay M. Tiftickjian, *Driving Under the Influence of Drugs: An Overview of Colorado’s Alcohol and Drug-Related Driving Offenses*, in MEDICOLEGAL ASPECTS OF MARIJUANA: COLORADO EDITION, *supra* note 10, at 85, 89 [hereinafter Tiftickjian, *Colorado’s Alcohol & Drug-Related Driving Offenses*].

⁹⁵ See Danny Spewak, *State Takes Another Step Toward Medical Marijuana Access*, WGRZ.COM (Oct. 21, 2015), <http://www.wgrz.com/story/news/2015/10/21/another-step-toward-medical-marijuana/74365878> [https://perma.cc/3GH6-VERG].

⁹⁶ N.Y. VEH. & TRAF. LAW § 1192(4) (Mckinney 2016).

II. STATE MARIJUANA DUI LAWS: ARIZONA, COLORADO, AND NEW YORK

A. *Arizona*

Since its 2010 legalization of medical marijuana, Arizona's per se marijuana DUI laws have been subjected to intense scrutiny in the courts as medical marijuana patients have become increasingly frustrated with the vague language of the pertinent statutes.⁹⁷ The problem in Arizona stems from the ambiguous and superficially contradictory nature of its statutes concerning medical marijuana and drug DUIs. The Arizona Medical Marijuana Act (AMMA) specifically prohibits the

[o]perating, navigating or being in actual physical control of any motor vehicle, aircraft or motorboat while under the influence of marijuana, *except that a registered qualifying patient shall not be considered to be under the influence of marijuana solely because of the presence of metabolites or components of marijuana that appear in insufficient concentration to cause impairment.*⁹⁸

The AMMA seemingly provides fundamental protections for medical marijuana patients against DUI prosecutions stemming from the mere presence of marijuana metabolites in the body. The AMMA even goes as far as to apparently protect against prosecutions based on the presence of “components of marijuana”—presumably such as THC—that fail to appear in sufficient concentrations to cause impairment.⁹⁹

Arizona's statutory scheme, according to the AMMA, facially appears to provide important protections to legal medical marijuana patients. Under the AMMA, medical marijuana patients would presumably not have to worry about marijuana DUI convictions based upon non-active metabolites found days or weeks after last usage. Patients would also, theoretically, not have to worry about their THC concentrations as long as they are not actually impaired. Accordingly, the AMMA seems to emphasize a marijuana DUI theory based upon impairment, as opposed to one based upon scientifically ambiguous test results of marijuana metabolites or THC. The statutory guidelines for a DUI, however, directly contradict the

⁹⁷ See Brian Skoloff, *Ariz. Court: Pot Metabolite Test Not Enough for DUI Conviction*, THE CANNABIST (Apr. 22, 2014), <http://www.thecannabist.co/2014/04/22/arizona-court-rules-dui-law-impairment-marijuana-users/10209/> [https://perma.cc/29W8-XSXE].

⁹⁸ ARIZ. REV. STAT. § 36-2802(D) (West 2016) (emphasis added).

⁹⁹ *Id.*

spirit and purpose¹⁰⁰ of the AMMA by prohibiting driving “[w]hile there is any drug defined in section 13-3401 or its metabolite in the person’s body.”¹⁰¹ The conflicting nature of the two laws is apparent when one realizes that both “cannabis” and “marijuana” are explicitly listed as prohibited substances in Section 13-3401.¹⁰² Hence, the AMMA and Arizona’s current DUI statute directly contradict each other with regard to their treatment of marijuana and its metabolites. This tension has slowly started to play itself out in the Arizona courts where it remains a litigated issue today.

The incongruous nature of Arizona’s medical marijuana and drug DUI laws has been center-stage in the case of *Dobson v. McClennen*.¹⁰³ Krishna Dobson and Marvelle Anderson were convicted in Arizona for driving with marijuana metabolites present in the body pursuant to § 28-1381(A)(3) (the DUI statute) despite having valid medical marijuana cards at the time that were excluded from evidence and became the main issue on appeal.¹⁰⁴ Dobson and Anderson asserted that they had the right to submit into evidence their medical marijuana registration identification cards because the AMMA provides an affirmative defense to a DUI charge under the DUI statute.

The Arizona Court of Appeals, however, utilizing a strict textualist approach to the law, argued that it “must assign to each word its ‘usual and commonly understood meaning’ unless the Legislature ‘clearly intended’ otherwise.”¹⁰⁵ The court reasoned that, in order to invoke the affirmative defense provided by the AMMA, the defendants must show that they “took a ‘prescription drug[] as prescribed’ by a specified medical practitioner,” and that Dobson and Anderson “cite no authority suggesting that ‘as prescribed’ is intended to include a ‘written certification’ as used in the AMMA.”¹⁰⁶ The state court of appeals thus rendered the protective nature of the AMMA for drivers virtually obsolete. By excluding the medical marijuana certificate given by a doctor from the definition of “as prescribed,” as provided by the prescription drug exception in the DUI

¹⁰⁰ See Daniel G. Orenstein, *Voter Madness? Voter Intent and the Arizona Medical Marijuana Act*, 47 ARIZ. L.J. 391, 410–11 (2015) (discussing the spirit and purpose of the AMMA in the context of impaired driving laws).

¹⁰¹ ARIZ. REV. STAT. § 28-1381(A)(3) (West 2016).

¹⁰² See *id.* § 13-3401(4), (19).

¹⁰³ See generally *Dobson v. McClennen*, 337 P.3d 568, 570–71 (Ariz. Ct. App. 2014) (“Petitioners’ arguments implicate provisions of the Arizona Medical Marijuana Act (AMMA), passed by Arizona voters in November 2010 . . .”).

¹⁰⁴ *Id.* Only one of the petitioners had an Arizona medical marijuana card. *Id.* at 571. The other petitioner’s medical marijuana card was from Oregon. *Id.*

¹⁰⁵ *Id.* at 572.

¹⁰⁶ *Id.* at 572–73 (alteration in original).

statute,¹⁰⁷ the court concluded that the AMMA merely sanctions a “written certification” for marijuana, but not a “prescription” for marijuana.¹⁰⁸ By differentiating between a “written certification” and a “prescription,” the court held that such medical marijuana certifications fall outside the parameters of the DUI statute’s exception for prescription drugs.¹⁰⁹

The court continued its argument by noting that marijuana is a Schedule I controlled substance (despite passage of the AMMA), and thus, no physician may prescribe it since Schedule I drugs by definition lack any acceptable medical use.¹¹⁰ The court’s holding left authorized medical marijuana patients in Arizona without any protection from the state’s strict per se DUI drug laws. The holding went against the intent and spirit of the AMMA by preventing authorized medical marijuana patients from presenting evidence of their marijuana certifications as an affirmative defense against the state’s DUI drug laws.

The Arizona Court of Appeals did not stop by simply construing the prescription drug exception narrowly, but continued by explicitly gutting the AMMA of its marijuana DUI protections. The court concluded its argument by asserting that “[p]etitioners were not prosecuted or penalized for using or possessing marijuana; they were prosecuted and penalized *for driving* after having used marijuana. Petitioners’ use of marijuana while having valid registry identification cards did not mean they could then drive or control a vehicle without violating (A)(3).”¹¹¹ In essence, the court asserted that the DUI statute criminalizing the presence of marijuana metabolites in drivers takes precedence over the AMMA’s explicit prohibition on the prosecution of certified medical marijuana patients for the presence of marijuana metabolites while driving. This is an assault on the intent and spirit of the AMMA voter initiative to protect medical marijuana users just like Dobson.¹¹²

While petitioners’ argument that the AMMA provides blanket immunity for medical marijuana patients from marijuana DUI prosecutions is incongruent with the prescription drug exception—and purely illogical in light of basic safety precautions—the AMMA does explicitly provide an affirmative defense for certified marijuana patients from prosecution under

¹⁰⁷ See ARIZ. REV. STAT. § 28-1381(D) (West 2016).

¹⁰⁸ *Dobson*, 337 P.3d at 573.

¹⁰⁹ See Orenstein, *supra* note 100, at 401–02 (analyzing the *Dobson* decision).

¹¹⁰ See *Dobson*, 337 P.3d at 573.

¹¹¹ *Id.* at 574.

¹¹² See Orenstein, *supra* note 100, at 418.

the DUI statute. The affirmative defense provided by the AMMA is the type of basic protection medical marijuana patients should have from DUI prosecutions and is consistent with the prescription drug exception already on the books in Arizona.¹¹³ Eventually, the Arizona courts would move in favor of this type of affirmative defense as a logical solution.¹¹⁴

Despite Arizona's hazy marijuana DUI laws, it appeared for a time that the state courts would provide some clarity to the issue when a state court of appeals case essentially overturned the prohibition on marijuana metabolites in drivers that had been established by *Dobson*.¹¹⁵ In *Montgomery v. Harris*, defendant Hrach Shilgevorkyan was pulled over by police for speeding and making unsafe lane changes, and was arrested for a DUI when blood samples—obtained after he told police he had smoked marijuana the previous night—revealed the presence of Carboxy-THC.¹¹⁶ The court asserted that:

The State's interpretation that "its metabolite" includes *any* byproduct of a drug listed in § 13-3401 found in a driver's system leads to absurd results

Most notably, this interpretation would create criminal liability regardless of how long the metabolite remains in the driver's system or whether it has any impairing effect.¹¹⁷

The court correctly noted that Carboxy-THC can stay in a person's body for up to thirty days after ingestion, and therefore prosecuting a driver for having an inactive metabolite could lead to criminalizing otherwise legal conduct under the AMMA.¹¹⁸ Despite the court's best efforts to provide a science-based approach to the metabolite law, the Arizona Court of Appeals failed to extend the central holding, instead asserting that "*Harris* is not a significant change in the law—it is merely the first case to address the ambiguity of the phrase 'its metabolite.'"¹¹⁹ It seemed the case law regarding even the presence of mere inactive metabolites remained obscure, let alone

¹¹³ See ARIZ. REV. STAT. § 28-1381(D) (West 2016).

¹¹⁴ The Supreme Court of Arizona eventually granted certiorari in *Dobson*—as discussed in detail later, see *infra* pp. 20–21, and held that "the AMMA does not immunize a medical marijuana cardholder from prosecution under § 28–1381(A)(3), but instead affords an affirmative defense if the cardholder shows that the marijuana or its metabolite was in a concentration insufficient to cause impairment." *Dobson v. McClellenn*, 361 P.3d 374, 375 (Ariz. 2015).

¹¹⁵ See Skoloff, *supra* note 97.

¹¹⁶ *State ex rel. Montgomery v. Harris*, 322 P.3d 160, 160 (Ariz. 2014).

¹¹⁷ *Id.* at 162 (citation omitted).

¹¹⁸ *Id.* at 162–63. As the court describes, this would lead to the bizarre result whereby medical marijuana patients would effectively be prohibited from driving since they could have Carboxy-THC in their system for weeks after abstinence. See *id.*

¹¹⁹ *State v. Werderman*, 350 P.3d 846, 848 (Ariz. Ct. App. 2015) (footnote omitted).

the law regarding the presence of actual THC, which can also remain in the body for long periods of time without impairing effects. Even in the aftermath of *Harris*, conservative lawmakers pushed back against the court's central holding by attempting to enact legislation that would explicitly prohibit the presence of active or inactive marijuana metabolites in drivers.¹²⁰ Fortunately for medical marijuana patients, the Arizona Supreme Court stepped in and granted certiorari in the *Dobson* case to clear the conflicting nature of the AMMA and marijuana DUI laws.

The Arizona Supreme Court, finding *Dobson*'s argument that the AMMA gives absolute immunity from the DUI statute unpersuasive, held that the AMMA provides a limited affirmative defense to a DUI charge.¹²¹ The court in dicta criticized the DUI statute for "cast[ing] a net that embraces drivers who have proscribed drugs or their impairing metabolites in their bodies but who may or may not be impaired."¹²² Despite such language, the court was still unwilling to go so far as to provide the type of affirmative defense available to prescription drug users under the DUI statute's prescription drug exception—asserting instead that there remains a significant enough difference between the "written certification" that medical marijuana patients receive and the "prescription" typically given by doctors.¹²³ Instead of allowing medical marijuana "certifications" to be considered equal to regular "prescriptions," which would allow marijuana patients access to the already well-established affirmative defense available for patients with "prescriptions" under section 28–1381(D), the court consigned marijuana patients to reliance on the AMMA for protection.¹²⁴ This reasoning is both practical and prudent in light of the way in which medical marijuana is currently used by patients. Marijuana dosing—unlike dosing for drugs covered by the DUI statute's prescription drug exception—is an inexact science and varies considerably between individuals.¹²⁵ Given the lack of research and the immense degree of individual variability in marijuana's impairing effects, it is logical to conclude that a patient, and not a physician, will have a better sense of their

¹²⁰ See Ray Stern, *Sonny Borrelli's DUI Bill Targets Medical-Cannabis Users With "Inactive" Metabolites*, PHX. NEW TIMES (Jan. 28, 2015), <http://www.phoenixnewtimes.com/news/sonny-borrellis-dui-bill-targets-medical-cannabis-users-with-inactive-metabolites-6644340> [https://perma.cc/YC5B-AVZD].

¹²¹ *Dobson v. McClennen*, 361 P.3d 374, 377 (Ariz. 2015).

¹²² *Id.*

¹²³ *Id.* at 377–78.

¹²⁴ *Id.*

¹²⁵ See *supra* Part I (detailing the science of marijuana at length).

own tolerance to marijuana, as well as the amount of marijuana necessary to achieve the desired medicinal effect.¹²⁶

Arizona provides the interesting case of a state attempting to enforce per se DUI laws on marijuana, and its metabolites, while attempting to accommodate a coexisting medical marijuana regime. While the current state of Arizona's marijuana DUI law remains messy, and can lead to "absurd" results, there are certain aspects of the AMMA that—with the added safeguards of the affirmative defense as announced by the most recent *Dobson* decision¹²⁷—could provide at least a basis for a more rational, science-based approach to marijuana DUI laws. As of now, Arizona proscribes the presence of any amount of THC or its metabolites in the body of a driver, but at least provides an affirmative defense for certified patients to prove such quantities were insufficient to create impairment.¹²⁸ The availability of expert witnesses to testify as to a specific individual's impairment level and tolerance will likely be crucial in asserting an affirmative defense under the AMMA. The Arizona state courts would be wise to allow the liberal use of such expert testimony and scientific research at DUI trials until research advances within the field.¹²⁹

¹²⁶ See *Dobson*, 361 P.3d at 378.

¹²⁷ The affirmative defense provided by the AMMA, and discussed in *Dobson*, was recently put into issue in *Arizona v. Robbins*. *Arizona v. Robbins*, No. 1 CA-CR 15-0584, 2016 WL 4894863 (Ariz. Ct. App. Sept. 15, 2016). Raymond Robbins, a medical marijuana patient from Arizona, was stopped by police after exhibiting erratic driving behavior. *Id.* at *1. When officers asked Robbins for his identification, he instead presented his AMMA card since he was unable to locate his driver's license. *Id.* Robbins also told police he had smoked marijuana approximately two hours before being stopped. *Id.* An officer trained in DUI detection arrived shortly after the stop to administer a field sobriety test, which Robbins failed. *Id.* Officers then arrested Robbins and obtained a blood sample that tested positive for methamphetamine, amphetamine, marijuana, and marijuana metabolites. *Id.* Robbins received multiple DUI charges; an (A)(1) charge for being *actually* impaired, and an (A)(3) charge for having prohibited drugs in his system while driving. *Id.* The lower court *denied* Robbins' attempt to submit his AMMA card into evidence to establish an affirmative defense to *both* charges. *Id.* at *1–2. On appeal, the court (correctly) asserted that the AMMA does not provide an affirmative defense to an (A)(1) charge, which is based upon *actual* impairment. *Id.* at *3. The court did, however, conclude that the AMMA card *should* have been allowed into evidence to establish an affirmative defense to the (A)(3) charge. *Id.* Ultimately the court concluded that the error was harmless, however, since the presence of amphetamine and methamphetamine in Robbins' blood was sufficient for conviction under (A)(3), regardless of the presence of marijuana. *Id.* at *4.

¹²⁸ See ARIZ. REV. STAT. § 28-1381(A)(3) (West 2016); *Dobson*, 361 P.3d at 378.

¹²⁹ The largest obstacle to presenting evidence of marijuana's impairing effects and its variability among individual users, particularly chronic users such as medical patients, is marijuana's continued listing as a Schedule I drug. By categorizing marijuana as a Schedule I drug (a drug that has *no* accepted medicinal value) the federal government has effectively shutdown much of the research that would be needed for medical marijuana patients to present a good, science-based, affirmative defense. See *Drug Scheduling*, DRUG ENF'T ADMIN., <https://www.dea.gov/druginfo/ds.s>

While a *per se* DUI prohibition on marijuana lacks scientific sense in that it is likely to be over-inclusive in a state that sanctions medical marijuana, the lack of a numerical threshold for THC blood concentration—as exists in other states—prevents the law from being *underinclusive* as well.¹³⁰ This is a problem confronted by states that have started to adopt numerical limits for THC blood concentrations similar to the way in which alcohol DUIs have been regulated. To gain a better understanding of these numerical THC thresholds, it is necessary to venture from the deserts of Arizona to the Rocky Mountains of Colorado, where the progressive push to legalize marijuana has been strongest.

B. Colorado

For the past decade, Colorado has led the United States in instituting progressive marijuana reforms.¹³¹ In 1998, Colorado voters approved an amendment to the state constitution—with a 54% majority—to legalize medical marijuana.¹³² The medical marijuana program remained relatively small until the mid-aughts when state courts increasingly began to interpret the amendment's language broadly.¹³³ Bolstered by the election of President Obama—who advised the Department of Justice to make the federal prosecution of state-authorized medical marijuana programs among its lowest priorities—the Colorado marijuana revolution began, and dispensaries boomed into business across the state.¹³⁴ Colorado voters made the state the first to legalize the recreational use of marijuana after passing Amendment 64 with 55% of the vote in 2012.¹³⁵ As a result, Colorado has perhaps

html [<https://perma.cc/C9C7-S9XR>] (“Schedule I drugs, substances, or chemicals are defined as drugs with no currently accepted medical use and a high potential for abuse.”).

¹³⁰ In a recent report on the marijuana DUIs, the American Automobile Association (AAA) concluded that “a quantitative threshold for *per se* laws for THC following cannabis use cannot be scientifically supported.” BARRY LOGAN ET AL., AAA FOUND. FOR TRAFFIC SAFETY, AN EVALUATION OF DATA FROM DRIVERS ARRESTED FOR DRIVING UNDER THE INFLUENCE IN RELATION TO *PER SE* LIMITS FOR CANNABIS 3 (2016). Out of the 11,328 DUI cases studied, that involved the presence of marijuana, “58.3 percent of drivers had THC concentrations [of] less than 5 ng/mL.” *Id.* at 21. Thus, most drivers with marijuana in their system—regardless of impairment—would be below the thresholds set in states like Colorado.

¹³¹ See generally Tiftickjian, *History of Marijuana Legislation in Colorado*, *supra* note 10 (Jay Tiftickjian has compiled an entire book on the evolution of Colorado's increasingly progressive marijuana laws.).

¹³² *Id.* at 2–3.

¹³³ *Id.* at 3.

¹³⁴ *Id.*

¹³⁵ *Id.*

the highest number of marijuana regulations in the country—including marijuana DUI laws.

Colorado implemented a relatively novel marijuana DUI standard that is based upon a driver's blood concentration of THC, in lieu of the per se standards set by states like Arizona.¹³⁶ Pursuant to C.R.S. section 42-4-1301(6)(a)(IV):

In any prosecution for DUI or DWAI, the defendant's BAC or drug content at the time of the commission of the alleged offense . . . gives rise to the following presumptions or inferences:

. . . .

If at such time the driver's blood contained five nanograms or more of delta 9-tetrahydrocannabinol [THC] per milliliter in whole blood, as shown by analysis of the defendant's blood, such fact gives rise to a *permissible inference* that the defendant was under the influence of one or more drugs.¹³⁷

The Colorado marijuana DUI statute is important for two reasons: it contains a “permissible inference” clause, and it sets a numerical threshold to establish such a “permissible inference.”¹³⁸ While a per se DUI regime—such as the one employed in Arizona—creates a presumption of guilt if the defendant tests positive for any level of THC,¹³⁹ Colorado has adapted a “permissible inference” standard, whereby the presence of THC levels at, or above, the numerical threshold triggers an inference of guilt rather than a complete presumption.¹⁴⁰ It is a subtle yet important distinction in the law since a marijuana DUI case is “almost certainly more open to attack than presumptive alcohol limits, if for no other reason than the relative lack of research on the actual effects of THC levels on driving, as well as potential variations in tolerance levels and previous use.”¹⁴¹ By enacting a scheme that gives rise to a lesser “permissible inference” of guilt—compared to a “presumption” of guilt—the legislature implicitly accepts that the correlation between THC blood concentration and driving impairment is much more tenuous than the relationship between BAC and driving impairment. The permissible inference standard should still be lauded as a shift away from a draconian per se regime.

¹³⁶ See Tiftickjian, *Colorado's Alcohol & Drug-Related Driving Offenses*, *supra* note 94, at 87.

¹³⁷ COLO. REV. STAT. § 42-4-1301(6)(a)(IV) (2016) (emphasis added).

¹³⁸ See *id.*

¹³⁹ See *Dobson v. McClennen*, 361 P.3d 374, 375, 378 (Ariz. 2015).

¹⁴⁰ Tiftickjian, *Colorado's Alcohol & Drug-Related Driving Offenses*, *supra* note 94, at 89.

¹⁴¹ *Id.*

Missing in Colorado's five-nanogram permissible inference limit is any guidance regarding how to treat drivers who test positive for THC, but test under the five-nanogram threshold.¹⁴² There is no presumption of innocence if a driver tests positive for THC but below the five-nanogram threshold.¹⁴³ While there is still no widely accepted numerical threshold for marijuana impairment, allowing a presumption of innocence for those testing under a certain THC level is likely to be under-inclusive, since the novice marijuana user could still be impaired at such a level.¹⁴⁴ Given the wide variation among individual tolerance levels for marijuana impairment, any numerical threshold for even a "permissible inference" of impairment runs counter to the established science, and fails to fully consider *actual* driving impairment. While exact numerical thresholds are inherently problematic, Colorado has otherwise managed to craft a marijuana DUI statute that is, at least, less draconian than Arizona's.

1. Colorado's Marijuana DUI Statute

i. No Presumption of Innocence

While the absence of a presumption of innocence for positive THC tests below the five-nanogram level has its pros and cons, all numerical thresholds (for either guilt or innocence) are inherently suspect. One of the downsides of not having any presumption of innocence for even low THC levels is that marijuana impairment varies considerably among individuals. This is particularly true with chronic users and medical patients who may have adapted learned behaviors to counteract their impairment,¹⁴⁵ and who may, even during periods of abstinence, continue to test positive for low levels of THC. Additionally, while it is well-known that heavy drinkers can build some degree of tolerance to alcohol, alcohol tolerance with regard to its impact on driving differs considerably from marijuana tolerance, both in adapted learned behaviors and actual impairment.¹⁴⁶

¹⁴² See COLO. REV. STAT. § 42-4-1301 (2016).

¹⁴³ Tiftickjian, *Colorado's Alcohol & Drug-Related Driving Offenses*, *supra* note 94, at 87.

¹⁴⁴ See Johannes G. Ramaekers et al., *Tolerance and Cross-Tolerance to Neurocognitive Effects of THC and Alcohol in Heavy Cannabis Users*, 214 PSYCHOPHARMACOLOGY 391, 398 (2011).

¹⁴⁵ See Grotenhermen et al., *supra* note 42, at 1913.

¹⁴⁶ See Sewell et al., *supra* note 44, at 190. The effects of marijuana tolerance vary considerably among individuals when compared to the effects of alcohol tolerance in alcoholics and heavy drinkers. See *id.* Additionally, the fact that marijuana-impaired drivers tend to overestimate their level of impairment while alcohol-impaired drivers

While alcohol has predictable impairing effects on all people once a certain BAC level is achieved,¹⁴⁷ the same does not necessarily hold true for frequent marijuana users. Medical marijuana patients and chronic recreational users might always be above the five-nanogram threshold, but fail to experience any impairing psychomotor behavior. These two classes of users, medical marijuana patients and chronic recreational users, will, without a presumption of innocence threshold, almost always sustain “guilty” levels of THC in their systems. This is because

experienced cannabis consumers—such as the majority of Colorado’s qualified medical cannabis patients and many of the state’s recreational consumers—become tolerant to the substance’s behavioral effects. These subjects also retain trace concentrations of THC for extended periods of time well beyond the duration of impairment, making them potentially vulnerable to inappropriate prosecution and conviction under Colorado’s DUI THC inference.¹⁴⁸

Such classes of users are obviously at a much-heightened risk of being prosecuted because of their persistently high THC blood concentrations.¹⁴⁹ Medical marijuana patients and chronic recreational users therefore face a significant issue with regard to notice because such classes of users will likely never be able to estimate their THC blood concentration levels given the chronicity of their use. The absence of a presumption of innocence threshold thus places medical marijuana users and chronic recreational users in perpetual jeopardy of being prosecuted irrespective of *actual* impairment.¹⁵⁰ While the lack of a presumption of innocence level places the burden on chronic marijuana users to prove their innocence by other means (such as a lack of *actual* impairment), it effectively prevents another class of marijuana users from evading the law altogether.

Though the lack of a presumption of innocence for certain levels of THC has its clear downside with regard to particular classes of chronic users, it has a legitimate penological purpose with regard to another class of marijuana users. Those

tend to underestimate their level of impairment makes driving while impaired by marijuana significantly safer than drunk-driving, assuming the two substances are not combined. *See id.*

¹⁴⁷ *See supra* Section I.A.

¹⁴⁸ Paul Armentano, *Are THC Concentrations Appropriate for Presuming Psychomotor Impairment?*, in MEDICOLEGAL ASPECTS OF MARIJUANA: COLORADO EDITION, *supra* note 10, at 131, 134.

¹⁴⁹ *See id.*

¹⁵⁰ *See* Eef L. Theunissen et al., *Neurophysiological Functioning of Occasional and Heavy Cannabis Users During THC Intoxication*, 220 PSYCHOPHARMACOLOGY 341, 349 (2012).

who do not ingest marijuana—or only occasionally use the psychoactive—could theoretically become very impaired from a single “hit” of a marijuana cigarette without going over the five-nanogram threshold.¹⁵¹ Thus, the novice user who gets into a car after the first “hit” of marijuana might have a THC level below five-nanograms but still be impaired, while the medical marijuana patient who has not used marijuana in days could find himself above the five-nanogram threshold despite lacking any impairing effects.¹⁵² It would be illogical for the impaired novice user to bypass the DUI laws because he decided to experiment with the drug before getting behind the wheel, while the experienced medical marijuana smoker who has not used the drug in hours, or days, gets prosecuted despite a lack of impairment. The science indicates that the experienced marijuana user will not feel the same levels of impairment as a novice user despite significantly higher THC concentrations.¹⁵³ Infrequent marijuana users are more sensitive to lower levels of THC as it relates to performance impairment.¹⁵⁴ Additionally, there is science that indicates that some impairment is possible from as little as one or two nanograms of THC in whole blood.¹⁵⁵ The lack of a presumption of innocence for any level of THC corresponds to the scientific reality that certain individuals—particularly novice users—may still experience psychomotor impairment at levels under a five-nanogram threshold. The Colorado statute’s lack of a presumption of innocence at any level aligns with the legitimate penological goal of keeping impaired drivers off the road, since such impairment can occur—particularly among novice users—at relatively low THC blood concentrations.

ii. The Numerical Permissible Inference Threshold

Since the science shows such wide variability in marijuana impairment among individuals—particularly depending upon chronicity of use—the legitimacy of a numerical “permissible inference” THC threshold is inherently dubious. Colorado’s

¹⁵¹ See W.M. Bosker et al., *A Placebo-Controlled Study to Assess Standardized Field Sobriety Tests Performance During Alcohol and Cannabis Intoxication in Heavy Cannabis Users and Accuracy of Point of Collection Testing Devices for Detecting THC in Oral Fluid*, 223 PSYCHOPHARMACOLOGY 439, 444–45 (2012) (noting the difference in impairing effects of marijuana between chronic users and less frequent users).

¹⁵² See *id.*

¹⁵³ See Theunissen et al., *supra* note 150, at 342.

¹⁵⁴ See Johannes G. Ramaekers et al., *Tolerance and Cross-Tolerance to Neurocognitive Effects of THC and Alcohol in Heavy Cannabis Users*, 214 PSYCHOPHARMACOLOGY 391, 398 (2011).

¹⁵⁵ See Karschner et al., *supra* note 49, at 2045.

statute creates a permissible inference of being under the influence of marijuana for THC blood concentrations at, or above, the five-nanogram limit.¹⁵⁶ Therefore, a Colorado jury is permitted to infer a finding that a driver was under the influence of marijuana when tests show THC at, or above, the five-nanogram threshold.¹⁵⁷ While a permissible inference is not quite as strong as a presumption of guilt—such as the Arizona per se DUI statute—it still remains unlikely that a defendant will be acquitted for a DUI under Colorado’s law.¹⁵⁸ Thus, “[a] jury, if it is so-inclined, may convict a defendant of being under the influence of marijuana simply upon proof that the five-nanogram threshold was satisfied.”¹⁵⁹ This type of inference is more “open to attack” than a per se prohibition or a presumption of guilt threshold “if for no other reason than the relative lack of research on the actual effects of THC levels on driving, as well as potential variations in tolerance levels and previous use.”¹⁶⁰ Yet, with more states legalizing the medical or recreational use of marijuana—and the strong push for drug reform from the progressive wing of the Democratic Party¹⁶¹—additional research in the near future could theoretically make numerical thresholds more precise (like BAC), and thus more open to attack in court. Currently though, there is only limited research in the area of marijuana-impaired driving, with what little existing research consistently showing the variable nature of the drug upon different individuals. Therefore, precise thresholds make little scientific sense if the standard for a DUI is to be actual driving impairment.¹⁶²

Research into the impairing effects of marijuana on drivers is essential if *any* THC threshold statute is going to contain a permissible inference clause.¹⁶³ Yet the law has imposed a five-nanogram threshold without a robust foundation in actual science.¹⁶⁴ Without a substantial scientific basis “it may be argued that Colorado’s permissible inference statute is an unscientific and inadvisable public policy response to behavior

¹⁵⁶ COLO. REV. STAT. § 42-4-1301(6)(a)(IV) (2016).

¹⁵⁷ *See id.*

¹⁵⁸ Tiftickjian, *Colorado’s Alcohol & Drug-Related Driving Offenses*, *supra* note 94, at 87.

¹⁵⁹ *Id.* at 89.

¹⁶⁰ *Id.*

¹⁶¹ *See* John Wagner & Christopher Ingraham, *Sanders Proposes Nixing Marijuana from Federal List of Dangerous Drugs*, WASH. POST (Oct. 28, 2015), https://www.washingtonpost.com/politics/sanders-will-propose-nixing-marijuana-from-federal-list-of-dangerous-drugs/2015/10/28/be8c3adc-7da2-11e5-b575-d8dcfdb4ea1_story.html [<https://perma.cc/K9WA-GRYX>].

¹⁶² *See* Armentano, *supra* note 148, at 132.

¹⁶³ *See id.* at 134.

¹⁶⁴ *See id.*

that is already sufficiently addressed by existing traffic safety laws, *which already criminally prohibit driving while impaired by drugs*, including cannabis.”¹⁶⁵ Despite increasing acceptance of progressive marijuana laws and the various regulations that come with it, such as DUI laws, “it remains far from established that the identification of either THC or the carboxy THC metabolite at specific levels may be consistently correlated with behavioral impairment.”¹⁶⁶ As long as science can find no direct correlation between increased blood THC concentrations and driving impairment,¹⁶⁷ then any numerical standard starts to become suspect and illegitimate under a jurisprudence that should be based upon actual impairment and dangerousness.

2. The Colorado Court’s Response to the Marijuana DUI Statute

Despite the murky scientific waters the Colorado legislature has waded into, the federal district court seemed reluctant to challenge the five-nanogram limit as being unconstitutionally vague in *Baker v. State*.¹⁶⁸ While the plaintiff in *Baker* brought a litany of claims in an attempt to challenge Colorado’s marijuana DUI statute,¹⁶⁹ only the Fourteenth Amendment claim seemed to hold any water¹⁷⁰—though not in the eyes of the district court.¹⁷¹ The court made clear that the plaintiff’s reliance on certain statistics for the Fourteenth Amendment claim was unpersuasive, noting that

[w]hile a correlation between an increase in cannabis use and a decline in automobile accidents might exist, the relevant inquiry is whether driving under the influence increases one’s probability of causing an automobile accident. The fact that cannabis use has increased while automobile accidents have decreased does not unequivocally defeat causation.¹⁷²

Although the accident statistics used to substantiate plaintiff’s claim that the marijuana DUI statute was unconstitutionally vague were irrelevant, as the court explicitly noted, the legal

¹⁶⁵ *Id.* (emphasis added).

¹⁶⁶ *Id.* at 131–32.

¹⁶⁷ Rebecca L. Hartman & Marilyn A. Huestis, *Cannabis Effects on Driving Skills*, 59 CLINICAL CHEMISTRY 1, 11 (2013).

¹⁶⁸ See *Baker v. State*, No. 13-cv-01334-PAB-KLM, 2014 WL 624342, at *12 (D. Colo. Feb. 18, 2014) (recommendation of U.S. Magistrate Judge).

¹⁶⁹ See *id.* at *3–4 (The plaintiff also included a First Amendment religious freedom claim, a Fourth Amendment search and seizure claim, and a Sixth Amendment confrontation clause claim.).

¹⁷⁰ See *id.* at *4.

¹⁷¹ *Id.* at *11–12.

¹⁷² *Id.* at *12 (recommendation of U.S. Magistrate Judge).

underpinning of the claim was not without merit should better scientific evidence come to light. Whereas a per se BAC threshold can pass muster under a vagueness claim because of the strong correlation between BAC and alcohol impairment, the same correlation does not exist between THC and marijuana impairment. The court asserted, however, that since “the [five-nanogram] statutory limit provides sufficient guidance as to what constitutes driving ‘under the influence’ and fair notice of the prohibited conduct, Plaintiff fails to sufficiently allege that the statute is unconstitutionally vague.”¹⁷³ The court seems unconcerned with regard to the inherently problematic nature of proper notice when one considers that most medical marijuana users and chronic recreational smokers may always be over the THC limit without a simple way of knowing.¹⁷⁴ It is perhaps this claim—that the five-nanogram threshold is unconstitutionally vague—that opens the door for science to explain why *any* numerical threshold could be considered unconstitutionally vague.

Ultimately, Colorado’s DUI marijuana statute, and the limited case law that has developed around it, provide at least a baseline for what a relatively progressive marijuana DUI statute may look like. It is true that Colorado’s “unique traffic safety measure risks inappropriately convicting unimpaired subjects of traffic safety violations, including and most especially legally qualified patients who may have previously consumed medicinal cannabis in the privacy of their own home some days earlier.”¹⁷⁵ It is equally true, however, that Colorado’s statute does at least *something* to provide protections for medical and chronic recreational users by adopting a legislative scheme without any per se threshold—and a lower standard of permissible inference instead. In light of the recent experiments in marijuana DUI legislation in states with established medical or recreational marijuana regimes, it makes sense to turn to a state in the process of implementing its first medical marijuana program—New York.¹⁷⁶

¹⁷³ *Id.*

¹⁷⁴ The only widely used way of accurately detecting THC is via a blood sample which the typical layperson will not have easy and abundant access to. *See supra* Section I.B (discussing the problems associated with testing for marijuana).

¹⁷⁵ Armentano, *supra* note 148, at 134.

¹⁷⁶ *See* Madison Margolin, *Here’s Why Doctors Are Still Skeptical About New York’s Medical Marijuana Law*, VILLAGE VOICE (Oct. 23, 2015), <http://www.villagevoice.com/news/heres-why-doctors-are-still-skeptical-about-new-yorks-medical-marijuana-law-7811336> [<https://perma.cc/SY7B-YL3P>].

C. *New York*

New York's long slog toward implementing a medical marijuana program has been in the works for decades, but only started to gain real momentum when State Assemblyman Richard Gottfried began introducing such legislation as the Compassionate Care Act back in 1997.¹⁷⁷ By the summer of 2014, and after numerous failed attempts in the legislature, Assemblyman Gottfried was able to convince Governor Cuomo to sign a much narrower and more restrictive version of the Compassionate Care Act.¹⁷⁸ While the legislation officially went into effect on January 1, 2016, the law is considered so restrictive as to be hollow in its actual impact on potential medical marijuana patients.¹⁷⁹ The statutory language of the New York State Compassionate Care Act, however, alludes to its own possible expansion to cover an increasing number of relatively less severe conditions and illnesses.¹⁸⁰ Unlike other states, such as Colorado, New York has not developed any new legislation to address marijuana DUIs, specifically, as the state begins to implement its medical program. New York thus provides a relatively blank slate upon which to suggest statutory regulations for marijuana DUI laws and potential protections for medical marijuana patients that can serve as a model DUI regime based upon actual driving impairment.

New York's current DUI laws do not make reference to any *specific* drug other than alcohol,¹⁸¹ rather, the single statute defines various levels of alcohol-related DWIs without any reference to marijuana. The law states, in pertinent part, that "[n]o person shall operate a motor vehicle while the person's ability to operate such a motor vehicle is impaired by the use of a drug as defined in this chapter."¹⁸² The term "drug" is defined by the statute as any drug listed in section 3306 of the Public Health Law which prohibits various controlled substances—

¹⁷⁷ See Madison Margolin, *Why the Architect of New York's Medical Marijuana Law Is Already Trying to Change It*, VILLAGE VOICE (Nov. 3, 2015), <http://www.villagevoice.com/news/why-the-architect-of-new-yorks-medical-marijuana-law-is-already-trying-to-change-it-7864748> [<https://perma.cc/R4T4-L4XB>].

¹⁷⁸ See *id.* Governor Cuomo still only reluctantly signed the bill after severely restricting the legislation by limiting the number of dispensaries in the state as well as the types of diseases and conditions that would make a patient eligible for marijuana treatment. *Id.*

¹⁷⁹ See *id.*

¹⁸⁰ See N.Y. PUB. HEALTH LAW § 3360(7)(ii)(b) (McKinney 2016) ("No later than eighteen months from the effective date of this section, the commissioner shall determine whether to add the following serious conditions: Alzheimer's, muscular dystrophy, dystonia, post-traumatic stress disorder and rheumatoid arthritis.").

¹⁸¹ See N.Y. VEH. & TRAF. LAW § 1192 (McKinney 2016).

¹⁸² *Id.* § 1192(4).

including marijuana.¹⁸³ There is nothing indicating that New York intends to change marijuana's designation in its prohibited substances list, and there is also a legitimate reason why New York need not do so to enforce a marijuana DUI policy that protects medical marijuana patients while still criminalizing impaired drivers.

New York's facially simplistic statutory language for criminalizing drug-impaired driving—with some additional safeguards for medical marijuana patients—has the potential to be a relatively ideal marijuana DUI law. New York's impairment statute neither includes any per se restrictions on drug quantities or metabolites, nor imposes a numerical threshold for either a presumption of impairment or a permissible inference of such.¹⁸⁴ The statute does not discriminate among various drugs either, and simply refers to any drug listed in the health code's controlled substances list.¹⁸⁵ This statutory structure is very much in line with a legal theory based upon actual impairment, since it does not attempt to divine numerical limits for impairment based upon murky science, but rather maintains a subjective standard of impairment because specific drug concentrations do not correlate strictly with driving impairment.¹⁸⁶

New York lawmakers realized the potential issue of measuring driving impairment based on drug concentrations as early as 1985.¹⁸⁷ An interim report on drug-impaired driving by the legislature found several major problem areas regarding drugged driving, including in pertinent part, "the inability to state specifically that a defined level of a specific drug is impairing."¹⁸⁸ Viewed in light of such a report, New York's drugged driving statute is astute in its simplicity. By creating statutory language without numerical thresholds for drug impairment, New York lawmakers have inadvertently created a statutory DUI regime based upon *impairment* and *dangerousness*, which has gone unchanged even in light of medical marijuana's implementation. Lawmakers in New York would be wise to let the existing laws stand as is, since such laws rely entirely on actual driving impairment with regard to drugs like marijuana. Safeguards, such as the affirmative defense available in Arizona's AMMA,¹⁸⁹ as well as some minor policy changes, would go a long

¹⁸³ See *id.* § 1192.

¹⁸⁴ See *id.* § 1192(4).

¹⁸⁵ See *id.*

¹⁸⁶ See Roth, *supra* note 16, at 897.

¹⁸⁷ INTERIM REPORT: THE DRUG IMPAIRED DRIVER, *supra* note 90, at 28.

¹⁸⁸ *Id.*

¹⁸⁹ ARIZ. REV. STAT. § 36-2802(D) (West 2016); see Dobson v. McClennen, 361 P.3d 374, 378 (Ariz. 2015).

way in creating a truly ideal marijuana DUI policy. The following part will use New York's simplistic DUI laws as a foundation upon which a scientifically legitimate marijuana DUI policy can be built.

III. A MODEL FOR STATES: BUILDING ON NEW YORK'S DUI LAW

If marijuana is too unique, and thus overly problematic, for the creation of a THC threshold that accurately judges impairment, then a subjective impairment standard may be the best approach, rather than a standard such as Arizona's, which is designed to more easily obtain DUI convictions.¹⁹⁰ Instead of creating arbitrary—and potentially problematic—numerical thresholds for THC blood concentrations, lawmakers should not settle for an illogical arithmetic standard in our justice system for the sake of easily securing more convictions.¹⁹¹ Rather, “[t]he answer should be to settle for an imperfect subjective impairment standard for criminal DUI marijuana laws.”¹⁹² Lawmakers should, therefore, build off of—and strengthen—New York's subjective impairment standard by adding statutory protections for medical marijuana patients and by implementing simple policy methods—such as the use of DREs and body-cameras—to curb the large degree of police discretion inherent in a subjective impairment standard.

A. Policy Considerations

The International Association of Chiefs of Police (IACP) has established a national standard for training and certifying officers to conduct drug recognition evaluations (DRE) in suspected drugged driving cases.¹⁹³ Officers qualified to perform DREs¹⁹⁴ will have to be considered experts by the court to testify as to their conclusions from a drug recognition evaluation,¹⁹⁵ and courts should become increasingly willing to admit them as such, at least for this limited purpose. The DRE consists of a twelve-step process that includes: a breath alcohol

¹⁹⁰ Roth, *supra* note 16, at 917.

¹⁹¹ *Id.*

¹⁹² *Id.*

¹⁹³ Tiftickjian, *Colorado's Alcohol & Drug-Related Driving Offenses*, *supra* note 94, at 98.

¹⁹⁴ The acronym DRE is often used interchangeably with “drug recognition expert” as well as “drug recognition evaluation.”

¹⁹⁵ Tiftickjian, *Colorado's Alcohol & Drug-Related Driving Offenses*, *supra* note 94, at 98.

test, an interview of the arresting officer, preliminary examination and pulse rate, an eye examination, divided attention psychophysical testing, vital sign testing, dark room examinations, muscle tone examinations, injection site examination, questioning regarding drug use, analysis of the totality of circumstances, and finally, a conclusion as to whether the suspect should undergo a toxicology exam.¹⁹⁶ New York's 1985 report on drugged driving even states that

[t]he [DRE] officers are qualified to take blood pressure readings and examine the eyes of drivers. For marijuana, officers look for symptoms such as high blood pressure and a rapid pulse rate. The chief technique they use, however, is the Horizontal Gaze Nystagmus test. . . . Specific coordination tests also are used since divided attention impairment occurs with marijuana use¹⁹⁷

With an increasing number of states legalizing the use of marijuana, it is logical to suggest that police officers engaged in enforcing traffic laws should have increased training to identify marijuana impairment.

Given a subjective impairment standard that will depend heavily on police discretion, the importance of increasing the number of qualified DRE officers available on the road is imperative for enforcement purposes. Standardized field sobriety tests (SFST), which all police officers are qualified to perform, have proven to be ineffective in indicating the probability of impairment in marijuana-exposed individuals.¹⁹⁸ DREs, on the other hand, have proven to be more useful in determining drug impairment than urine or blood tests, and as a result, drug recognition experts are increasingly used across the country.¹⁹⁹ According to law enforcement officials in Ohio, for instance, DRE officers "have an 86 percent accuracy rate when their assessments are compared to the [actual] results of blood and urine tests."²⁰⁰ State funds thus should be allocated to expanding DRE programs, and studies should be initiated to adequately validate the legitimacy and accuracy of DREs.²⁰¹

¹⁹⁶ *Id.* at 99–100.

¹⁹⁷ INTERIM REPORT: THE DRUG IMPAIRED DRIVER, *supra* note 90, at 22.

¹⁹⁸ See John P. Bederka, Jr. & Warren Cooper, *Under the Influence of Marijuana*, in MEDICOLEGAL ASPECTS OF MARIJUANA: COLORADO EDITION, *supra* note 10, at 183.

¹⁹⁹ See Allison Manning, *Going Beyond Sobriety Tests, Officers Learning to Gauge Drug Use*, COLUMBUS DISPATCH (May 24, 2013), <http://www.dispatch.com/content/stories/local/2013/05/24/officers-learning-to-gauge-drug-use.html> [<https://perma.cc/7G76-MTGE>].

²⁰⁰ *Id.*

²⁰¹ Roth, *supra* note 16, at 845–46.

Finally, given an increased reliance on police discretion under a subjective impairment standard, the need for concrete evidence corroborating police or DRE officer testimony would be essential to curb any abuses of power and to provide additional support for convictions (or acquittals). States should increase resources “for dashboard and body-worn cameras, which could be used to corroborate” DRE officer testimony and analyze physical indications of marijuana impairment.²⁰² Police-worn body cameras easily attach to an officer’s shirt and can record all interactions with potentially impaired drivers²⁰³—similar to the dashboard cameras in police vehicles that have been used for years. Increased use of police body and dashboard cameras has already gained traction among the public as a result of the recent media focus on the excessive use of force by police.²⁰⁴ With public sentiment focused intently on the use of police body cameras to curb the excessive use of force, there is already a strong push toward increasing the use of such devices.²⁰⁵ Increasing the accuracy of DUI convictions via the use of police body and dashboard cameras would merely be harnessing already existing and increasingly prevalent police technology. This is another mode—and another reason—in which such technology can increase public safety while serving a state’s penological goals.

B. *Statutory Considerations*

While New York’s DUI statute wisely focuses on the issue of impairment as opposed to numerical THC blood concentration thresholds, it still fails to provide necessary protections for medical marijuana patients who drive, such as an affirmative

²⁰² *Id.*

²⁰³ See Eric Markowitz, *The LAPD Plans to Buy 7,000 Police Body Cameras, but Administrators Balk over Price and Critics Cry Foul*, INT’L BUS. TIMES (Jan. 15, 2016), <http://www.ibtimes.com/lapd-plans-buy-7000-police-body-cameras-administrators-balk-over-price-critics-cry-2265613> [https://perma.cc/P6F9-CA2Y].

²⁰⁴ See, e.g., David Feige, *Brutal Reality*, SLATE (Apr. 10, 2015), http://www.slate.com/articles/news_and_politics/jurisprudence/2015/04/police_body_cameras_cops_commit_less_violence_and_complaints_are_real.html [https://perma.cc/7XMY-KDVK].

²⁰⁵ The recent epidemic of highly publicized (and video recorded) police shootings of unarmed black men has motivated lawmakers to institute various police-policy reforms—including the use of body-worn cameras. See *id.* While such shootings are not new, the pervasiveness of video-recording technology, as well as police-worn body cameras, have propelled such incidents into the public spotlight. Some of the most highly publicized victims of the use of force by police include: Keith Lamont Scott, Terence Crutcher, Alton Sterling, Freddie Gray, Walter Scott, Tamir Rice, and Michael Brown. Damien Cave & Rochelle Oliver, *The Raw Videos That Have Sparked Outrage over Police Treatment of Blacks*, N.Y. TIMES (Oct. 4, 2016), <http://www.nytimes.com/interactive/2015/07/30/us/police-videos-race.html> [https://perma.cc/38RR-PQT5].

defense. Nothing in New York's Compassionate Care Act creates, or even alludes to, additional protections for medical marijuana patients who are likely to be behind the wheel at some point.²⁰⁶ Lawmakers should consider whether additional protections are needed for medical marijuana patients, as well as patients being prescribed Xanax, Valium, or any other potentially impairing drug listed among New York's controlled substances.²⁰⁷ If lawmakers create regulations based upon a subjective standard of impairment, does it really matter *what* substance is causing the impaired driving? In theory it should not matter; impaired driving due to a controlled substance is still a DUI regardless of the drug used.²⁰⁸ In practice, however, it does matter.

Consider the case of *People v. Morel* in which Augustin Morel was charged with a marijuana DUI in New York.²⁰⁹ The only piece of evidence used against Mr. Morel was the accusatory instrument, sworn to by the arresting officer, which read in pertinent part:

I observed the defendant driving a car at the above-mentioned location I know the defendant was under the influence of drugs because I smelled an odor of marijuana coming from the defendant's clothing, I observed that the defendant had watery and bloodshot eyes, and I observed that the defendant had ash containing marijuana on his pants.²¹⁰

The defense argued, to no avail, that the complaint contained no allegations that the defendant was driving erratically or dangerously, such that would have demonstrated that he may have been impaired.²¹¹ Defense counsel argued, and the court concurred, that "the complaint contains no allegations that Defendant's driving was erratic, reckless or otherwise unlawful and dangerous to demonstrate he was not operating the car reasonably and prudently."²¹² The court held that though the complaint was confined to "bare-bone allegations with respect to Defendant's driving, the Appellate Division, First Department has held that not all classic symptoms of impairment or intoxication need be exhibited to establish that the defendant was incapable of operating the vehicle as a reasonable and prudent driver."²¹³ Mr. Morel was charged *not* because he was

²⁰⁶ See N.Y. PUB. HEALTH LAW § 3362 (McKinney 2016).

²⁰⁷ See *id.* § 3306.

²⁰⁸ See N.Y. VEH. & TRAF. LAW § 1192(4).

²⁰⁹ *People v. Morel*, No. 2015NY010820, 2015 WL 5038282, at *1 (Crim. Ct. N.Y. Cty. Aug. 25, 2015).

²¹⁰ *Id.* at *1–2.

²¹¹ *Id.* at *2.

²¹² *Id.*

²¹³ *Id.*

observed driving dangerously, recklessly, or while impaired, but rather because he had admitted to the arresting officer to having recently smoked marijuana.²¹⁴ This type of conviction may be tolerable in a prohibitionist regime, whereby the act of smoking itself is sufficiently morally blameworthy, but this conviction would be inherently suspect in a jurisdiction that authorizes certain levels of marijuana use.

If Mr. Morel *had* been a medical marijuana patient, however, lawmakers might begin to think differently about whether a person in his situation should have been convicted of a marijuana DUI. What makes marijuana different than other controlled substances—with regard to arrests and convictions—goes beyond the simple fact that marijuana’s odor is easily detected or that a common side-effect is blood-shot eyes. The fact is that marijuana remains a highly stigmatized substance, both for law enforcement that have used it as a tool for convictions during their decades long War on Drugs,²¹⁵ as well as for medical marijuana patients themselves.²¹⁶ As long as a stigma continues to surround marijuana use, affording medical marijuana patients additional statutory protections from marijuana DUI laws is necessary.

C. *How to Best Protect Legal Marijuana Users*

New York’s DUI statute, as well as other states’ statutes, should include additional protections for medical marijuana patients in the form of an explicit affirmative defense similar to the one created by the AMMA as interpreted by the most recent

²¹⁴ *Id.* (The arresting officer also noted that the defendant smelled of marijuana odor.).

²¹⁵ See generally MICHELLE ALEXANDER, *THE NEW JIM CROW* (rev. ed. 2012) (Michelle Alexander’s seminal work is perhaps one of the best pieces of writing describing mass incarceration, the War on Drugs, and the role of systemic racism in perpetuating the two. As Alexander succinctly explains: “More than 2 million people found themselves behind bars at the turn of the twenty-first century, and millions more were relegated to the margins of mainstream society, banished to a political and social space not unlike Jim Crow, where discrimination in employment, housing, and access to education was perfectly legal, and where they could be denied the right to vote. The system functioned relatively automatically, and the prevailing system of racial meanings, identities, and ideologies already seemed natural. Ninety percent of those admitted to prison for drug offenses in many states were black or Latino, yet the mass incarceration of communities of color was explained in race-neutral terms, an adaptation to the needs and demands of the current political climate. The New Jim Crow was born.” *Id.* at 58.).

²¹⁶ See Satterlund et al., *supra* note 23, at 15 (“Furthermore, marijuana use is generally criminalized on the one hand, yet increasingly normalized on the other. This contradiction has further ambiguated the social status of marijuana and marijuana consumers. Further complicating matters, state recognition of marijuana as a recreational drug may undo the gains of the hard-fought battles for recognition of marijuana as a medicinal substance, undermining the legitimacy of ‘cannabis’ and marijuana ‘patients,’ and reducing all consumers to ‘drug users’ again.” (internal citation omitted)).

Dobson decision.²¹⁷ Such a defense would allow the prosecution to not only enter into evidence any signs of driving impairment—including lab test results for THC—but allow medical marijuana patients to rebut any claim that certain THC levels created actual impairment. This type of protection would be most useful in states that do decide to create per se or permissible inference thresholds for THC concentration. Evidence that a driver's blood contained THC in excess of a statutorily defined numerical threshold would be rebutted by evidence of a driver's medical marijuana ID or prescription, the prescribing physician's testimony,²¹⁸ and relevant expert testimony regarding THC tolerance and its impact on driving impairment. While in the previously described case Mr. Morel was not a medical marijuana patient,²¹⁹ had he been a legal patient with an affirmative defense available to him, he would have been able to present evidence showing that despite his relatively recent use, his driving ability remained unimpaired. Mr. Morel would submit his medical marijuana ID into evidence and his prescribing physician would be able to testify as to Mr. Morel's condition, need, and subsequent tolerance to the impairing effects of THC. Expert witnesses could be called upon to testify that Mr. Morel's THC test is indicative of only prior, legal drug use and is thus not indicative of driving impairment at the time of arrest. The burden would then shift to the prosecution to present evidence, such as DRE officer testimony and body or dashboard camera footage, showing that Mr. Morel's driving was impaired *despite* his otherwise legal drug use. Such an affirmative defense would allow a medical marijuana defendant to shift the burden of proof to the prosecution to provide evidence, beyond THC blood tests, that shows that the driver was *actually* impaired by marijuana. Yet, in states that allow for both the medical and recreational use of marijuana, should only medical patients be afforded such an affirmative defense?

Given a legal theory based upon actual impairment and dangerousness—a theory in which New York's DUI regime appears to be grounded—little separates the medical marijuana patient from the chronic recreational user in states that have

²¹⁷ See *Dobson v. McClennen*, 361 P.3d 374, 378 (Ariz. 2015).

²¹⁸ This could become increasingly pertinent if future science enables doctors to give more precise dosing recommendations. The degree to which future science will enable precision in dosing remains unclear as marijuana research has remained stunted. See Susan Haigh, *This New England State Wants Researchers to Begin Studying Its Medical Marijuana*, THE CANNABIST (Oct. 3, 2016), <http://www.thecannabist.co/2016/10/03/connecticut-medical-marijuana-research/64462/> [https://perma.cc/5YA5-EHTW].

²¹⁹ This case took place before implementation of New York's Compassionate Care Act.

sanctioned both medical *and* recreational marijuana. Marijuana use is equally permissible for both individuals, yet it would seem counterintuitive to provide only the medical marijuana patient an affirmative defense. Indeed, providing medical marijuana patients such an affirmative defense without allowing chronic recreational users a similar defense would undermine the purpose of the affirmative defense itself, specifically, the ability to challenge the prosecution's reliance on a high THC blood concentration as the case-in-chief for attaining a DUI conviction. Further, the explicit statutory affirmative defense for medical marijuana users could create equal protection issues if such a defense is not available to all legal marijuana users.²²⁰ Lawmakers should therefore consider the merits of expanding such an affirmative defense to all legal marijuana users.

An affirmative defense should be provided to chronic recreational marijuana users in states that sanction both medical and recreational use. Just as it makes little scientific or penological sense to convict an unimpaired medical marijuana patient for driving over the statutory THC threshold, it makes little scientific or penological sense to convict the chronic recreational user in the same situation. If non-medical marijuana use is sanctioned—and thus no longer morally blameworthy in and of itself—there is little remaining justification for convicting the unimpaired chronic recreational marijuana user simply for having a high THC blood concentration. Chronic recreational users are akin to medical marijuana patients; their THC concentration is not necessarily indicative of impairment and may only be indicative of prior use. Given that chronic marijuana smokers may use the drug at similar levels as marijuana patients, it would seemingly violate the Equal Protection Clause to provide one class of user with an affirmative defense and not the other.²²¹

Chronic recreational marijuana users should therefore be afforded the same affirmative defense to a marijuana DUI as their medical counterparts, even if such a defense will appear inherently weaker. The chronic recreational marijuana user will not be able to submit a medical marijuana ID, since they assumedly will not have one. Such a user would not have a prescribing doctor who could provide testimony regarding the chronicity of the defendant's use or the recommended dosage. Instead, the chronic recreational user would have to rely on expert testimony from doctors and scientists opining about the given individual's tolerance in light of the individual's chronic

²²⁰ See U.S. CONST. amend. XIV.

²²¹ See *id.*

use. Yet, evidence to prove chronic use may be difficult to present. It is hard to imagine a jury sympathetic to the recreational user who puts friends on the witness stand to testify that the defendant used marijuana frequently, and in sufficient quantities, to build a certain level of tolerance. Given the rapidly changing views of marijuana, however, particularly in states that sanction recreational use, it is conceivable that such an affirmative defense could become a powerful tool in time.

It is likely that the medical marijuana patient will almost always elicit more sympathy from the jury when raising such an affirmative defense than will the chronic recreational user. Regardless, any legislative attempt to move away from specific THC concentration thresholds and toward a more subjective test based upon actual driving impairment—and not the mere presence of certain marijuana compounds in the blood—will be a step toward a more just and scientific approach to handling marijuana DUIs. A marijuana DUI regime that relies on actual driving impairment through use of police body and dashboard cameras, that provides an affirmative defense to users, and that does not create statutory THC thresholds based upon murky science, would be an ideal regulatory scheme until more research on marijuana's impairing effects establishes otherwise.

CONCLUSION

The rapid increase in the number of states sanctioning the use of medical or recreational marijuana has produced the unique issue of how to best create and enforce marijuana DUIs in a non-prohibitionist era. Without the moral condemnation that could be used to justify a *per se* prohibition on THC or its metabolites in the blood of drivers, a new statutory regime based upon science is necessary to handle the influx of medical marijuana patients and legal recreational users. Given the unique characteristics of marijuana, and its vast degree of impairment variability among individual users,²²² a more scientific approach would necessarily rely heavily on subjective driver impairment, rather than objective THC blood concentrations that often reveal little about a given driver's actual level of impairment.²²³ To achieve this goal, it is necessary to provide legal marijuana users with an affirmative defense to a marijuana DUI charge—similar to that recognized by the Arizona Supreme Court in

²²² See Sewell et al., *supra* note 44, at 188.

²²³ See Roth, *supra* note 16, at 890–91.

Dobson under the AMMA.²²⁴ Statutory thresholds, such as Colorado's five-nanogram limit, sanctioning a legal blood concentration of THC for drivers, fail by being underinclusive for the novice marijuana user who may be too impaired to drive but still remain under the legal THC threshold. States should thus focus less on THC tests—which describe past marijuana use, but do not correlate linearly with impairment²²⁵—and more on *actual* driver impairment. This goal can be achieved by expanding the use of DREs, police body cameras, and dashboard cameras to corroborate evidence of actual driver impairment.

Finally, and perhaps most importantly, it is necessary to increase research in the area of marijuana and its impairing effects on drivers. Marijuana's listing as a Schedule I drug remains a major barrier to research in this rapidly evolving field.²²⁶ Until marijuana is subject to the same type of decades-long research that drunk driving was, legal marijuana users should be afforded affirmative defenses to DUI charges, and government resources should be focused on ways to criminalize impaired drivers without prosecuting safe ones.

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²²⁴ See *Dobson v. McClennen*, 361 P.3d 374, 378 (Ariz. 2015).

²²⁵ See Sewell et al., *supra* note 44, at 188.

²²⁶ See *supra* note 10; see also *Report: US Government Impedes Medical Marijuana Research*, AL JAZEERA AM. (Oct. 20, 2015), <http://america.aljazeera.com/articles/2015/10/20/report-us-government-impedes-medical-marijuana-research.html> [https://perma.cc/L6DL-P9YM].

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